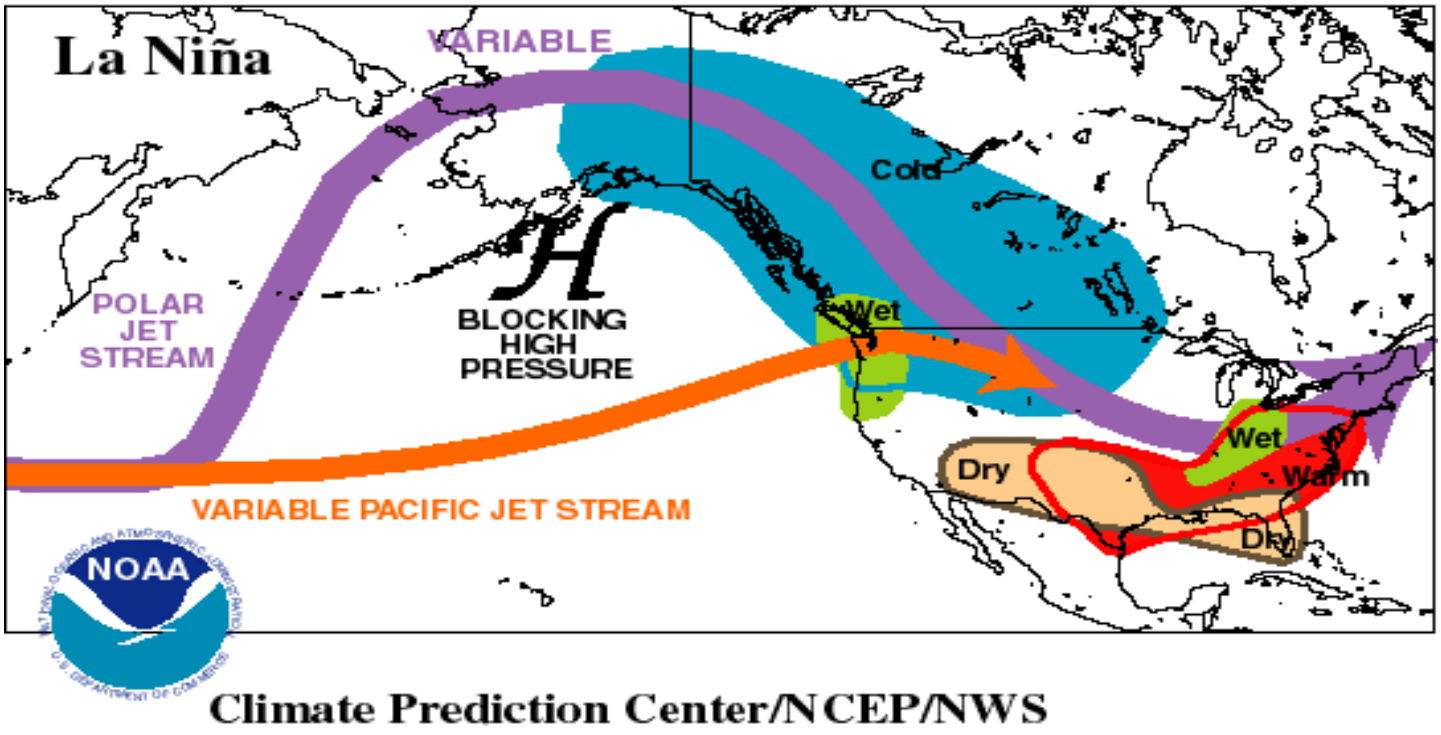
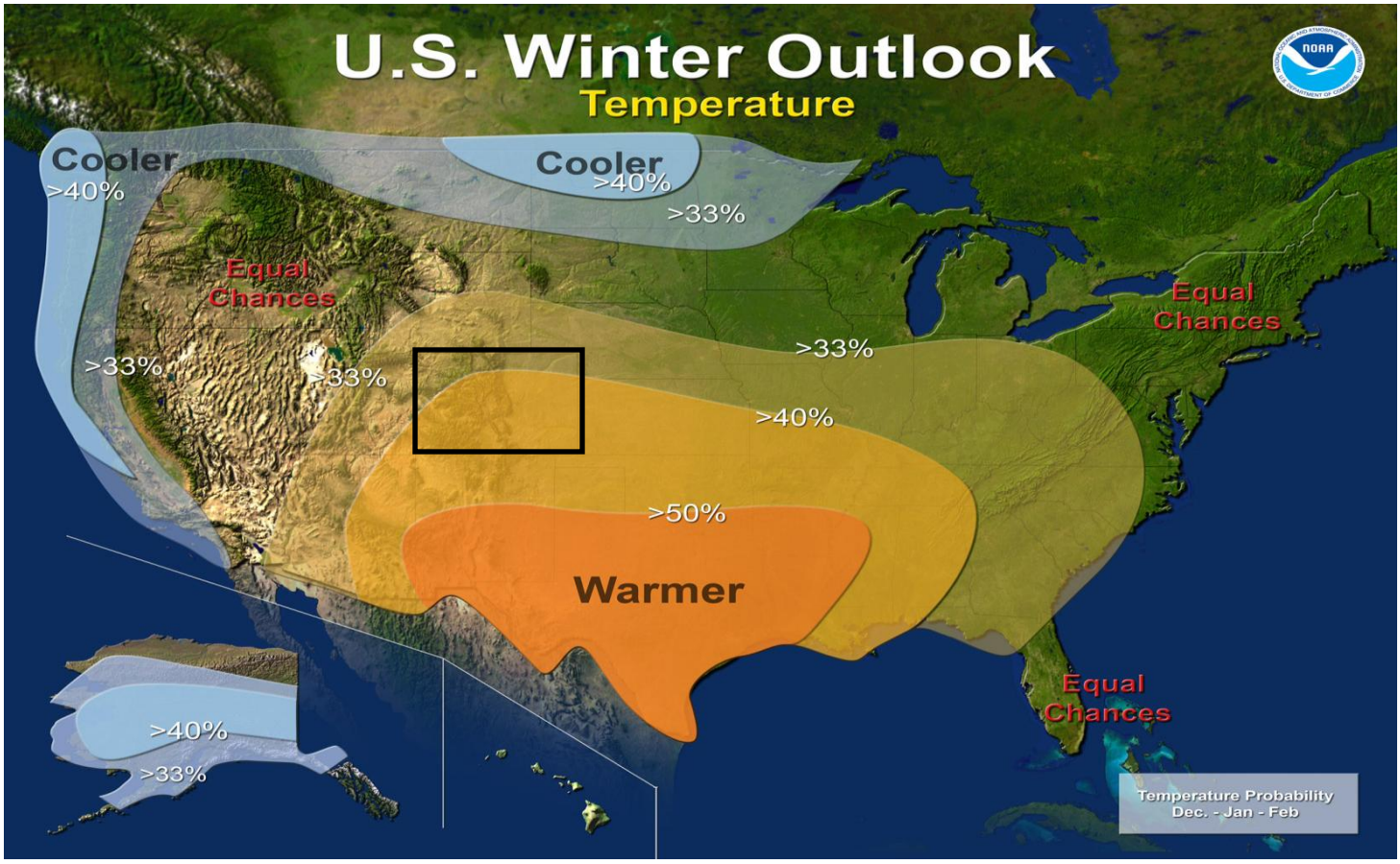
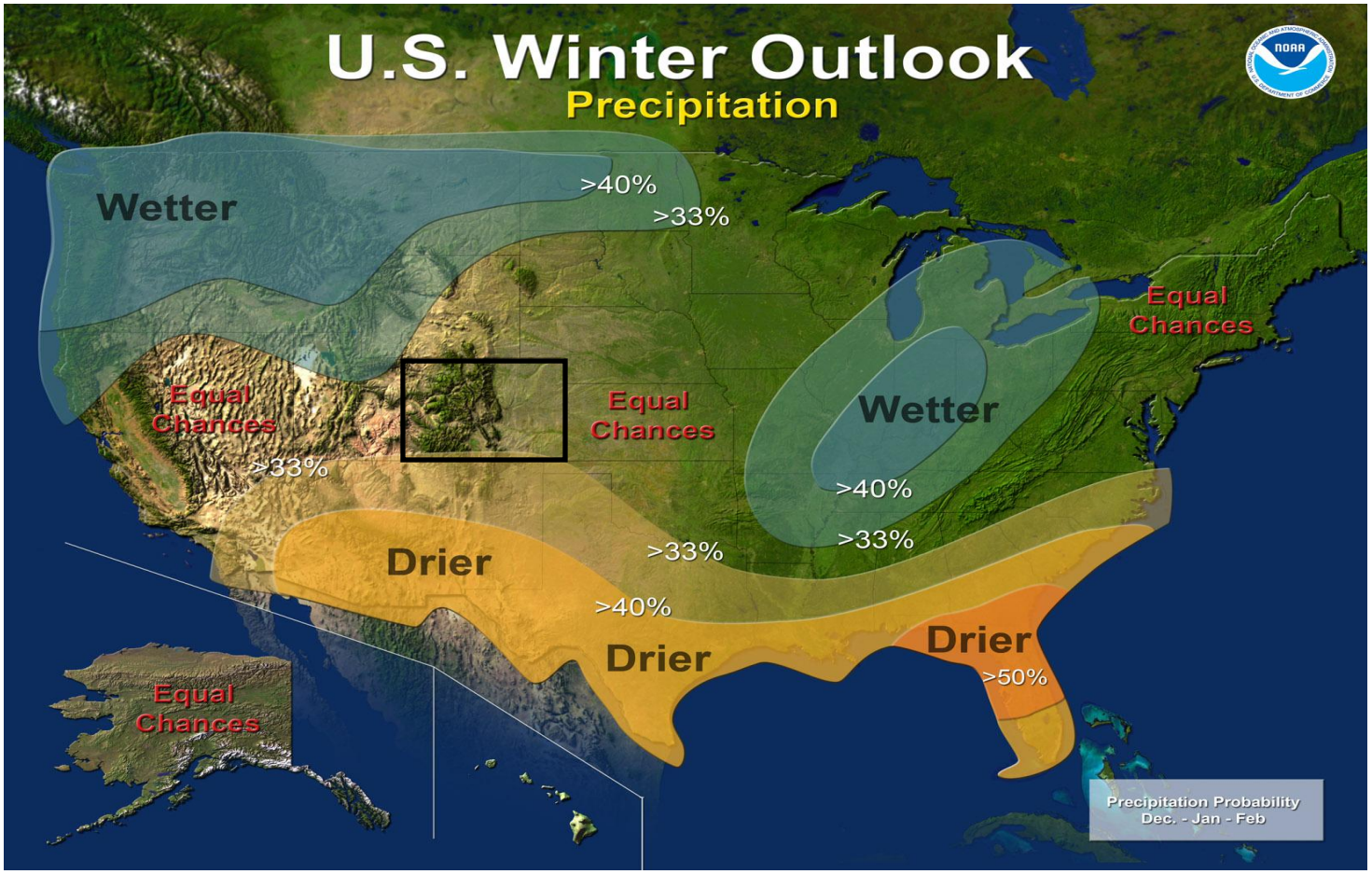
2010/2011 Winter Outlook for South Central and Southeast Colorado

The Climate Prediction Center (CPC) of NOAA's National Weather Service recently announced the presence of moderate to strong La Nina conditions across the eastern equatorial Pacific, with the expectation that these conditions will persist through the Northern Hemisphere Winter Season, before gradually diminishing through late spring of 2011. La Nina is the periodic cooling of ocean waters in the east-central equatorial Pacific, which can have an impact on the weather patterns across the globe.



The above graphic illustrates a northern shift in the polar jet stream and storm track, which are typical effects of La Nina conditions through the winter season across North America. The following graphics depict CPC's Temperature and Precipitation Outlook for December 2010 through February 2011. The warmer than normal conditions projected for southern and central portions of the contiguous United States, along with the drier than normal conditions indicated for the Southwestern through the Southeastern US and the wetter than normal conditions for parts of the Pacific Northwest, the Northern Rockies, the lower Great Lakes and Ohio Valley are based on the expected persistence of a moderate to strong La Nina, along with trends surmised within climate data over the past 30 years.

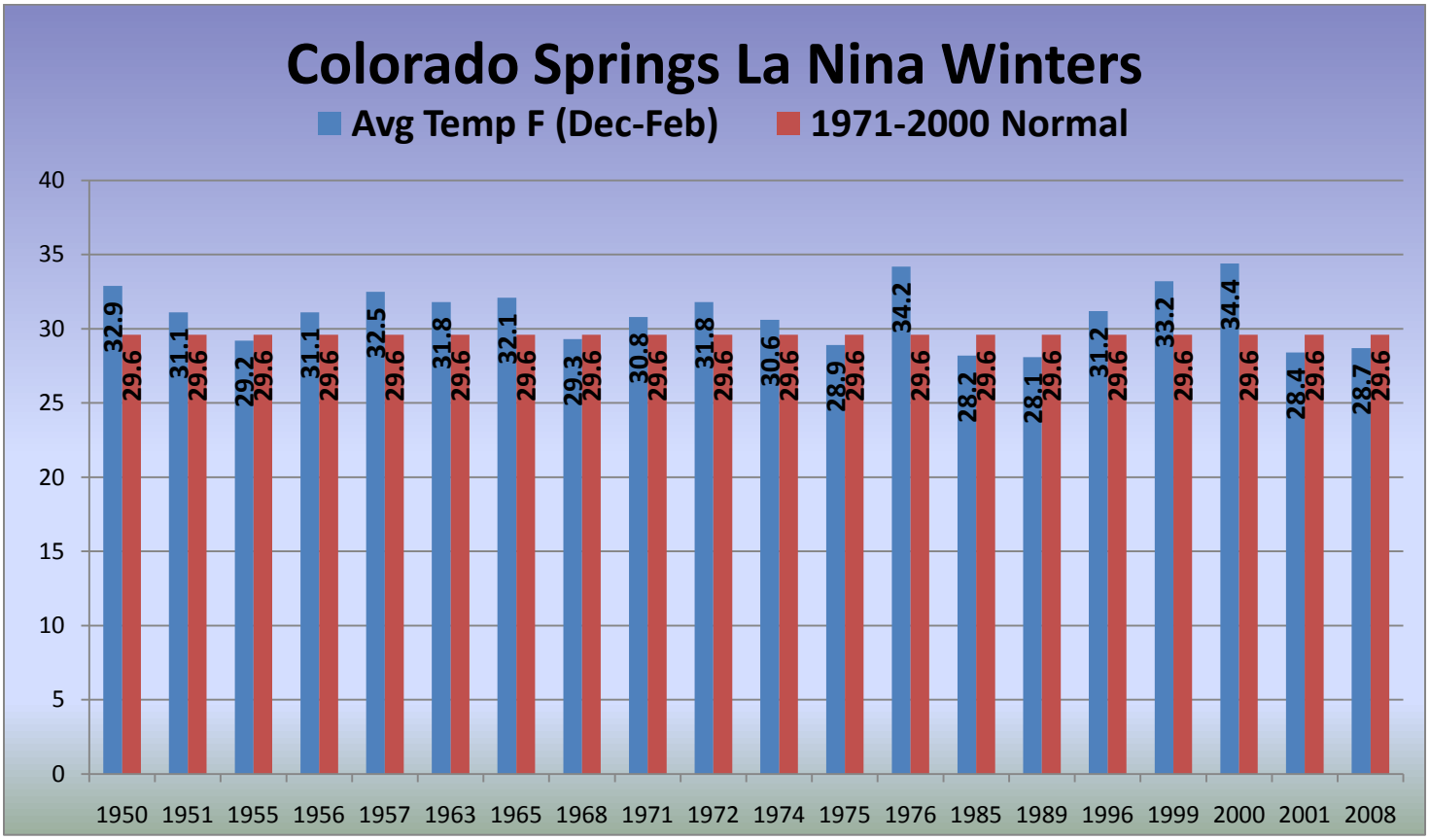

U.S. Winter Outlook
Temperature
Cooler
>40%
Cooler
>40%
>33%
Equal Chances
Equal Chances
>33%
>33%
>33%
>40%
>50%
Warmer
Equal Chances
>40%
>33%
Temperature Probability
Dec. - Jan - Feb

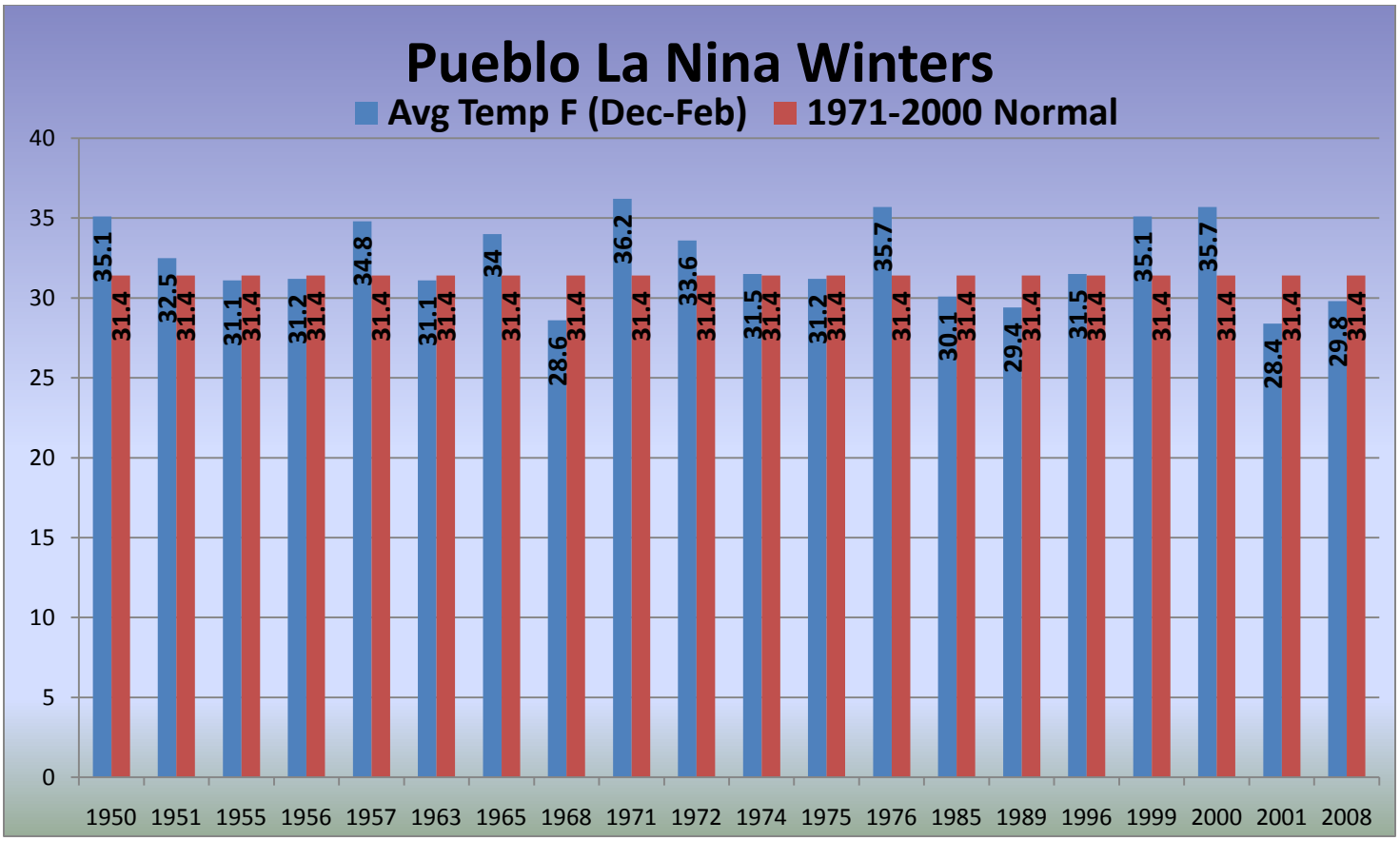

U.S. Winter Outlook
Precipitation
Wetter
>40%
>33%
Equal Chances
Equal Chances
Equal Chances
Wetter
>33%
>40%
>33%
Drier
>33%
>40%
Drier
Drier
>50%
Equal Chances
Precipitation Probability
Dec. - Jan - Feb

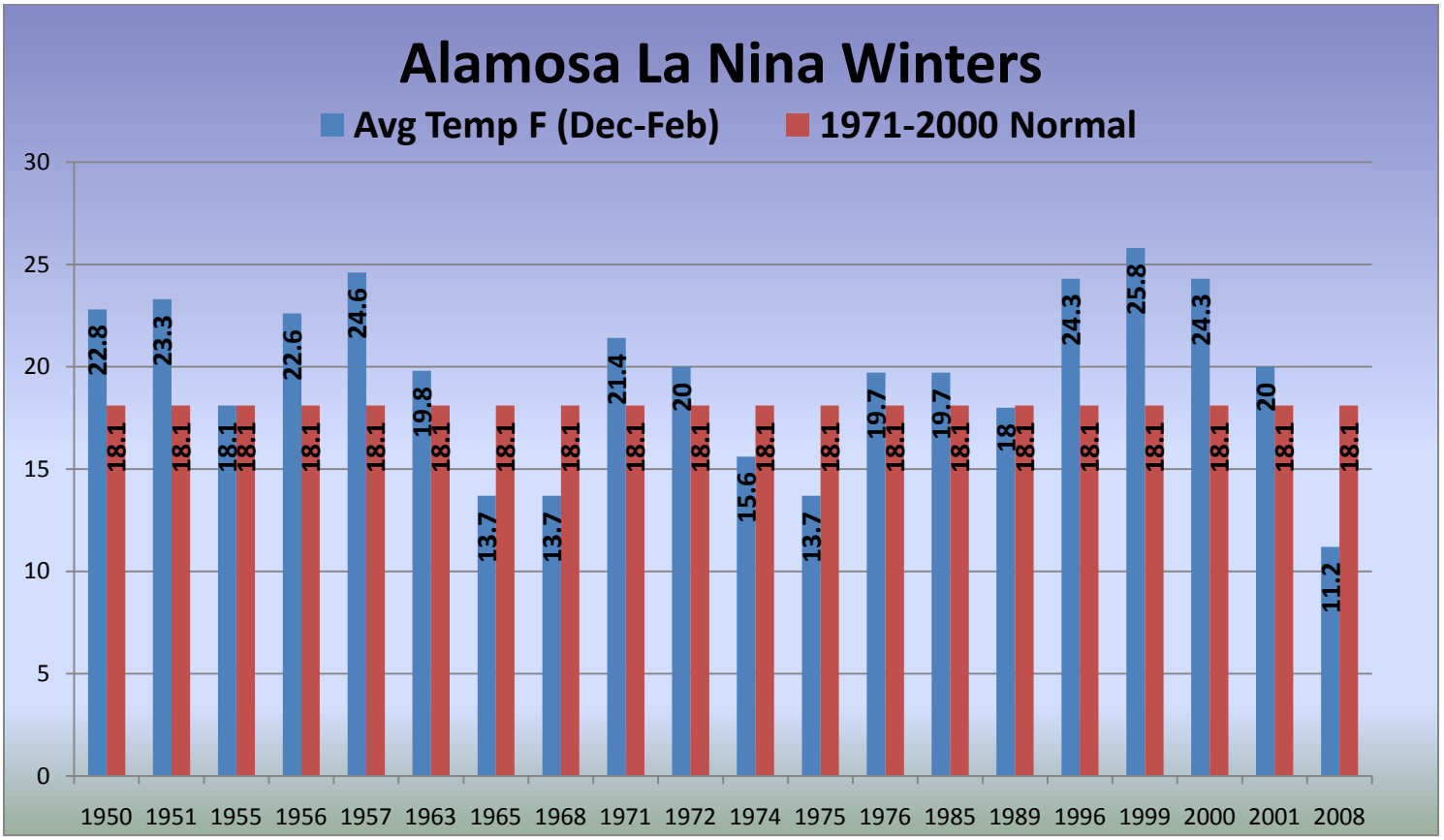
What do the above graphics mean for the upcoming winter season across south central and southeast Colorado?

In general terms, there is a greater than 40 percent chance that the average temperature for the winter months of December 2010 through February 2011 will be above the 30 year climatological norm for most of the area. The effects of La Nina conditions with respect to winter precipitation can vary widely across south central and southeast Colorado, with the above forecast giving a 33.3 percent chance of above, below or near normal precipitation, respectively, for most of Colorado, save a slightly higher chance of below normal precipitation for extreme southern Colorado.

The following graphics will help to shed some more light on La Nina and its effects on winter weather across south central and southeast Colorado. The data used in the graphics was collected from the official observation sites for Colorado Springs, Pueblo and Alamosa and SNOTEL sites during the previous weak to strong La Nina episodes of 1950, 1951, 1955, 1956, 1957, 1963, 1965, 1968, 1971, 1972, 1974, 1975, 1976, 1985, 1989, 1996, 1999, 2000, 2001 and 2008.



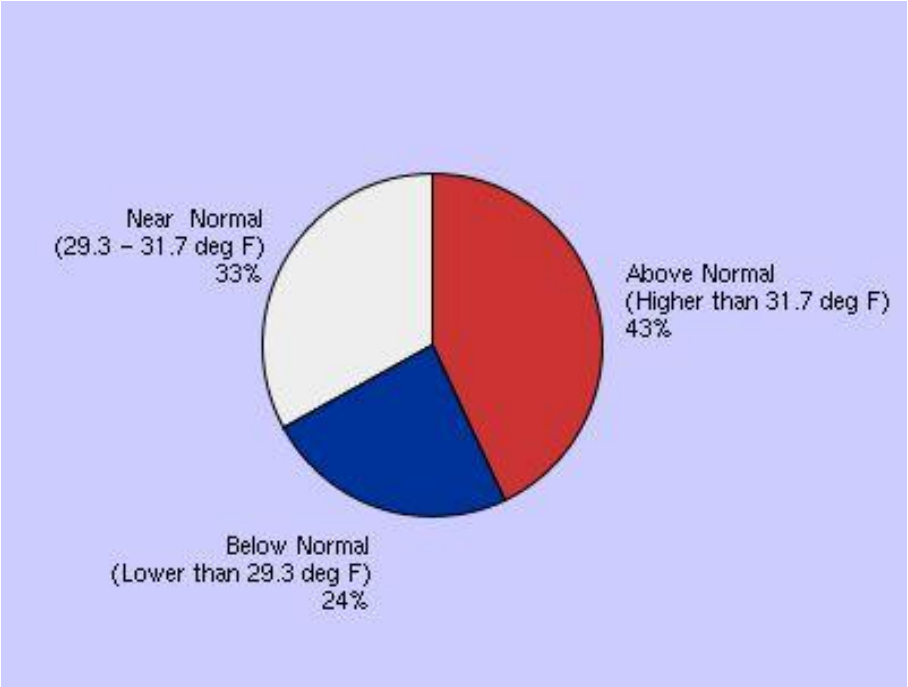

Pueblo La Nina Winters
Avg Temp F (Dec-Feb)
1971-2000 Normal
40
35
30
25
20
15
10
5
0
35.1
31.4
32.5
31.4
31.1
31.4
31.2
31.4
34.8
31.4
31.1
31.4
34
31.4
28.6
31.4
36.2
31.4
33.6
31.4
31.5
31.4
31.2
31.4
35.7
31.4
30.1
31.4
29.4
31.4
31.5
31.4
35.1
31.4
35.7
31.4
28.4
31.4
29.8
31.4
1950 1951 1955 1956 1957 1963 1965 1968 1971 1972 1974 1975 1976 1985 1989 1996 1999 2000 2001 2008


Alamosa La Nina Winters
Avg Temp F (Dec-Feb)
1971-2000 Normal
30
25
20
15
10
5
0
22.8
18.1
23.3
18.1
18.1
18.1
22.6
18.1
24.6
18.1
19.8
18.1
13.7
18.1
13.7
18.1
21.4
18.1
20
18.1
15.6
18.1
13.7
18.1
19.7
18.1
19.7
18.1
18
18.1
24.3
18.1
25.8
18.1
24.3
18.1
20
18.1
11.2
18.1
1950 1951 1955 1956 1957 1963 1965 1968 1971 1972 1974 1975 1976 1985 1989 1996 1999 2000 2001 2008

The above graphics indicate a definite trend of above average temperatures through the winter season with between 45 and 65 percent of La Nina years seeing warmer than normal conditions at Colorado Springs, Pueblo and Alamosa. Of particular interest, is the much above normal temperatures reported during the winter of 1998-1999, which had very similar characteristics to the current ongoing La Nina event. At any rate, the above data supports the warmer than normal temperature forecast for the upcoming winter across south central and southeast Colorado.

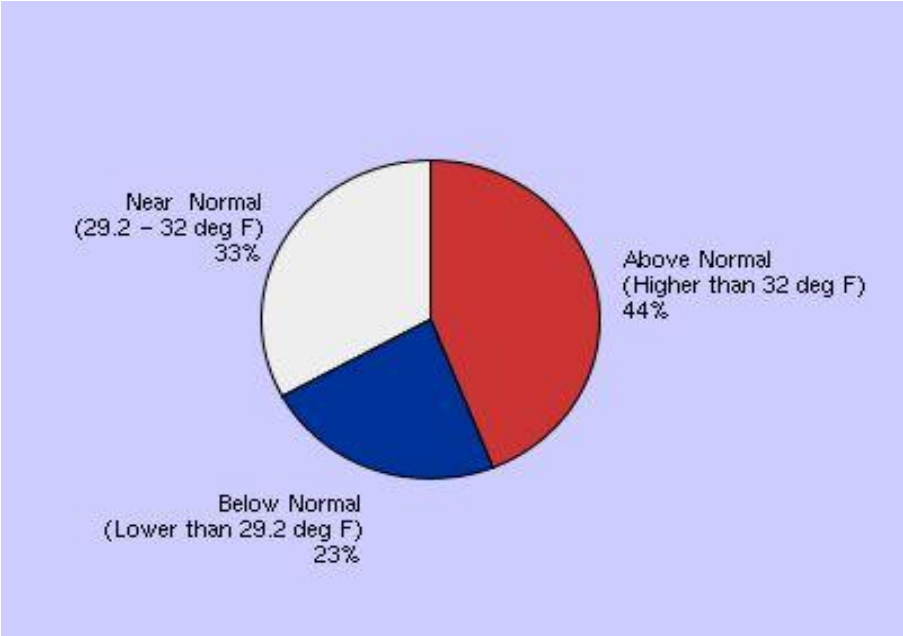
Specific average temperature forecasts from the Climate Prediction Center (CPC) for Colorado Springs, Pueblo and Alamosa are as follows:

Colorado Springs Temperature Outlook: Dec-Jan-Feb 2010-2011



There is a 43.0% chance for the average temperature during this 3-month period to be higher than 31.7°.
There is a 33.0% chance for the average temperature during this 3-month period to be between 29.3° and 31.7°.
There is a 24.0% chance for the average temperature during this 3-month period to be lower than 29.3°.

Pueblo Temperature Outlook: Dec-Jan-Feb 2010-2011

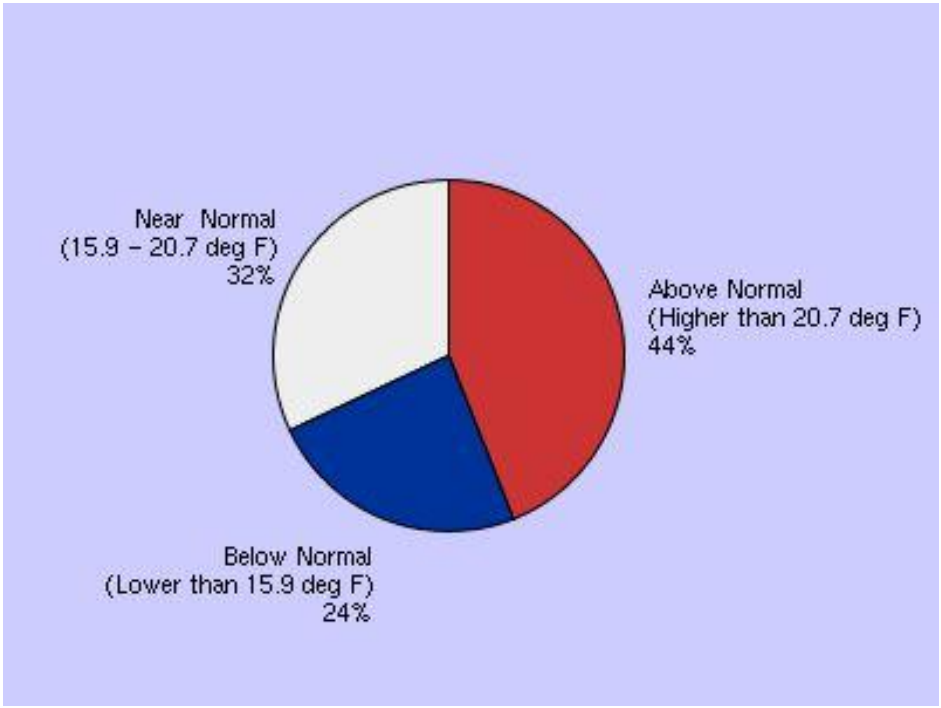


There is a 44.0% chance for the average temperature during this 3-month period to be higher than 32°.

There is a 33.0% chance for the average temperature during this 3-month period to be between 29.2° and 32°.

There is a 23.0% chance for the average temperature during this 3-month period to be lower than 29.2°.

Alamosa Temperature Outlook: Dec-Jan-Feb 2010-2011



There is a 44.0% chance for the average temperature during this 3-month period to be higher than 20.7°.

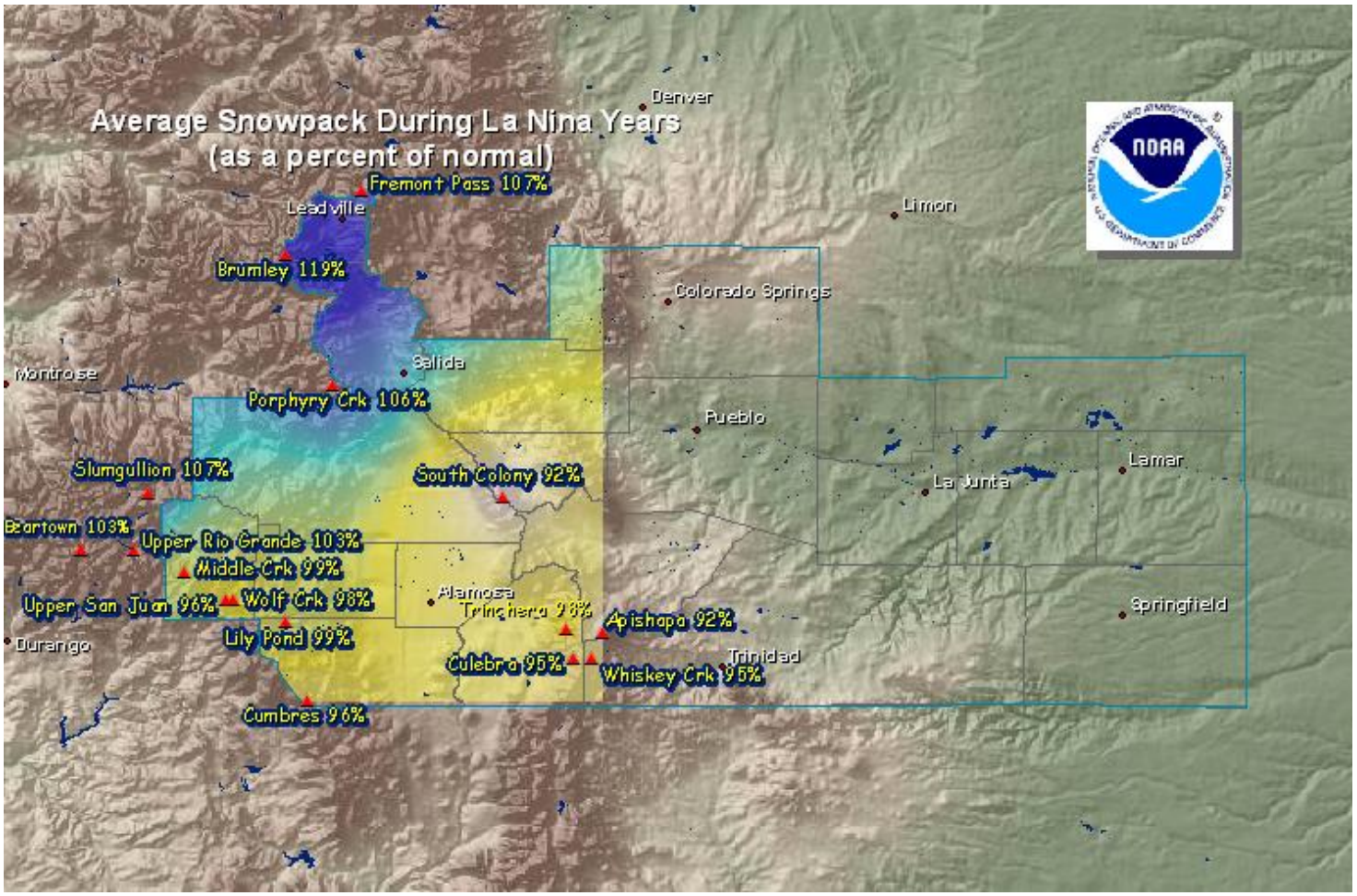
There is a 32.0% chance for the average temperature during this 3-month period to be between 15.9° and 20.7°.

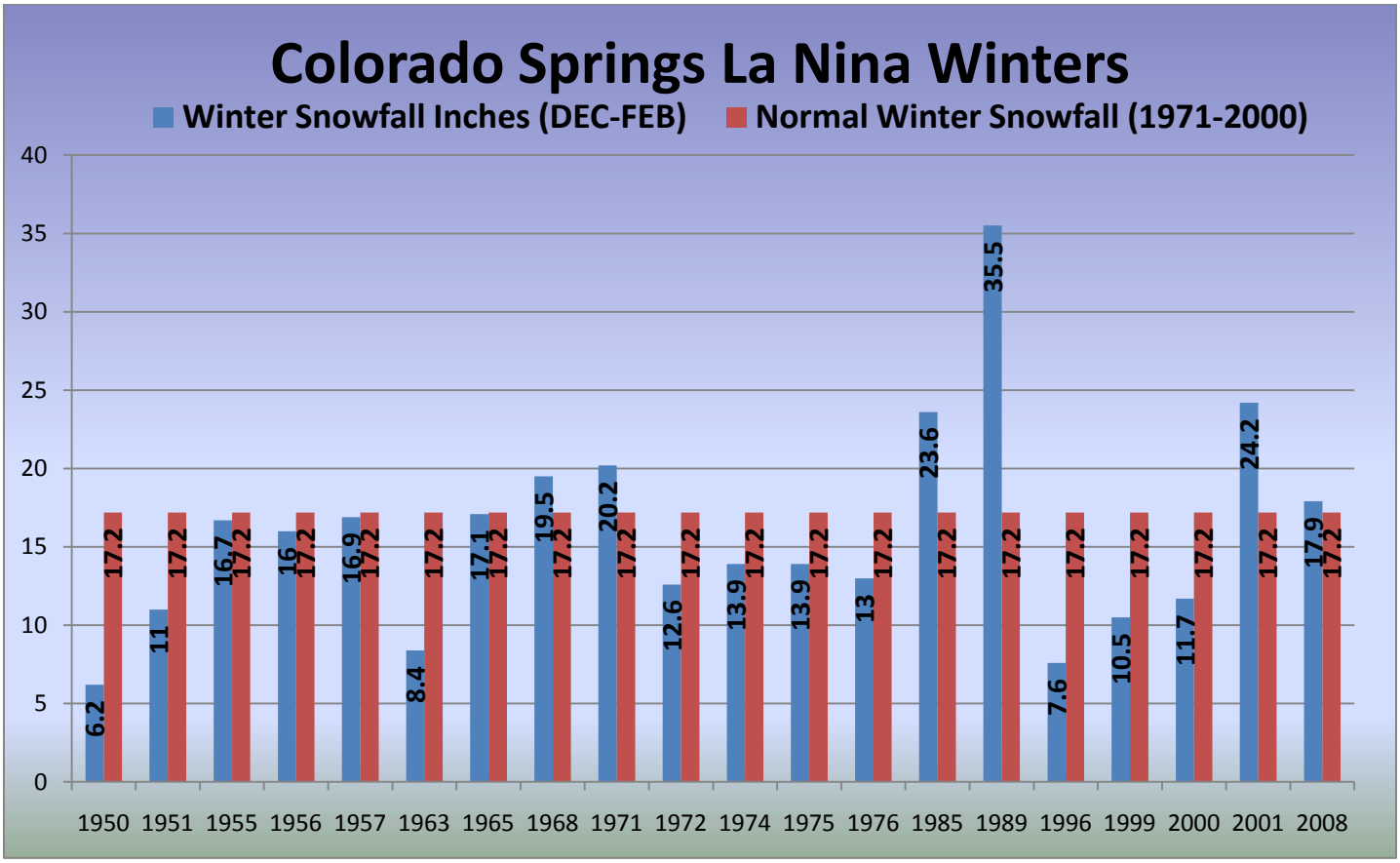
There is a 24.0% chance for the average temperature during this 3-month period to be lower than 15.9°.

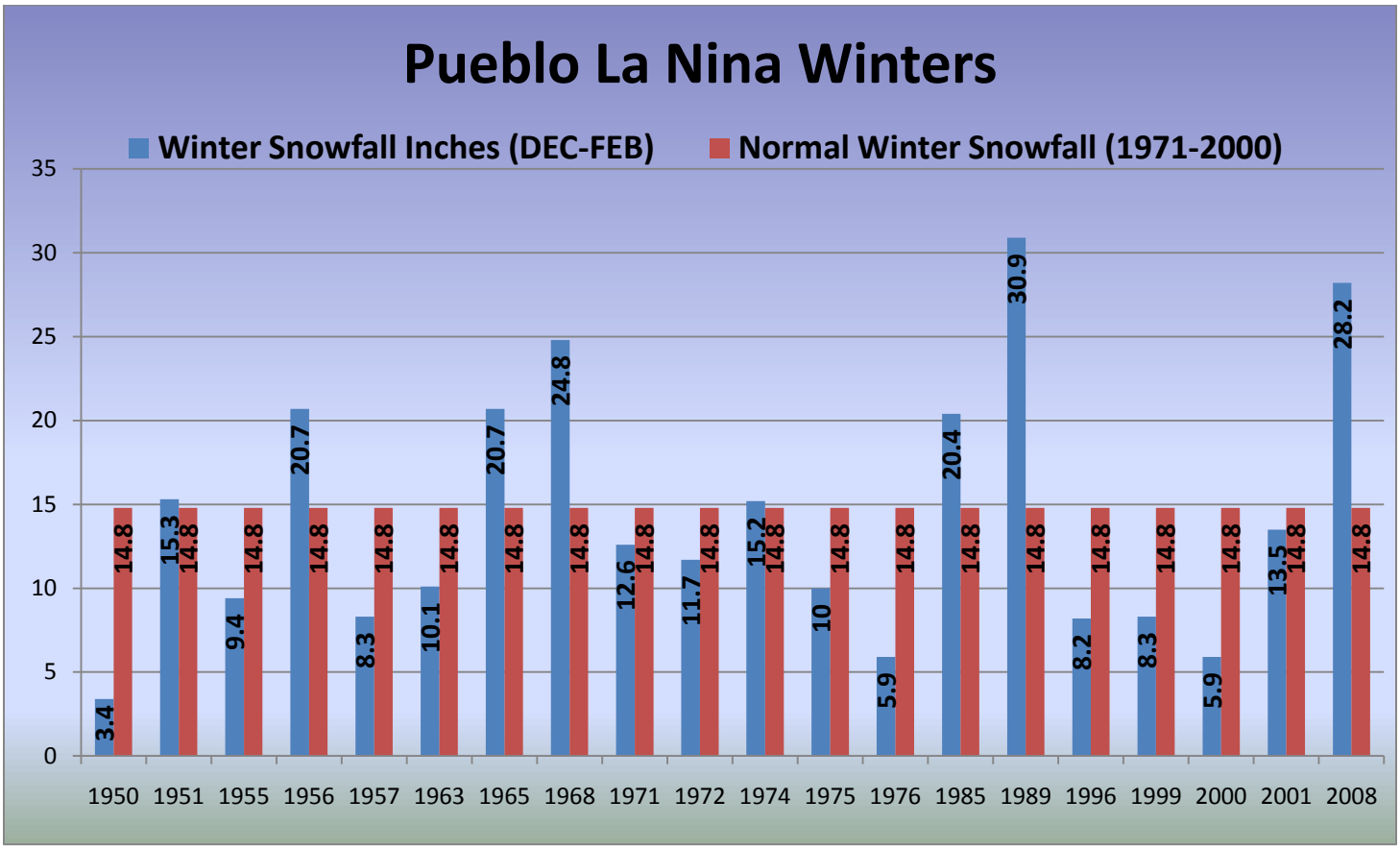
Temperature forecasts for the Leadville area (Sugarloaf Reservoir), Buena Vista, Westcliffe, Trinidad, Eads, Lamar and Springfield can be found at the following web site:

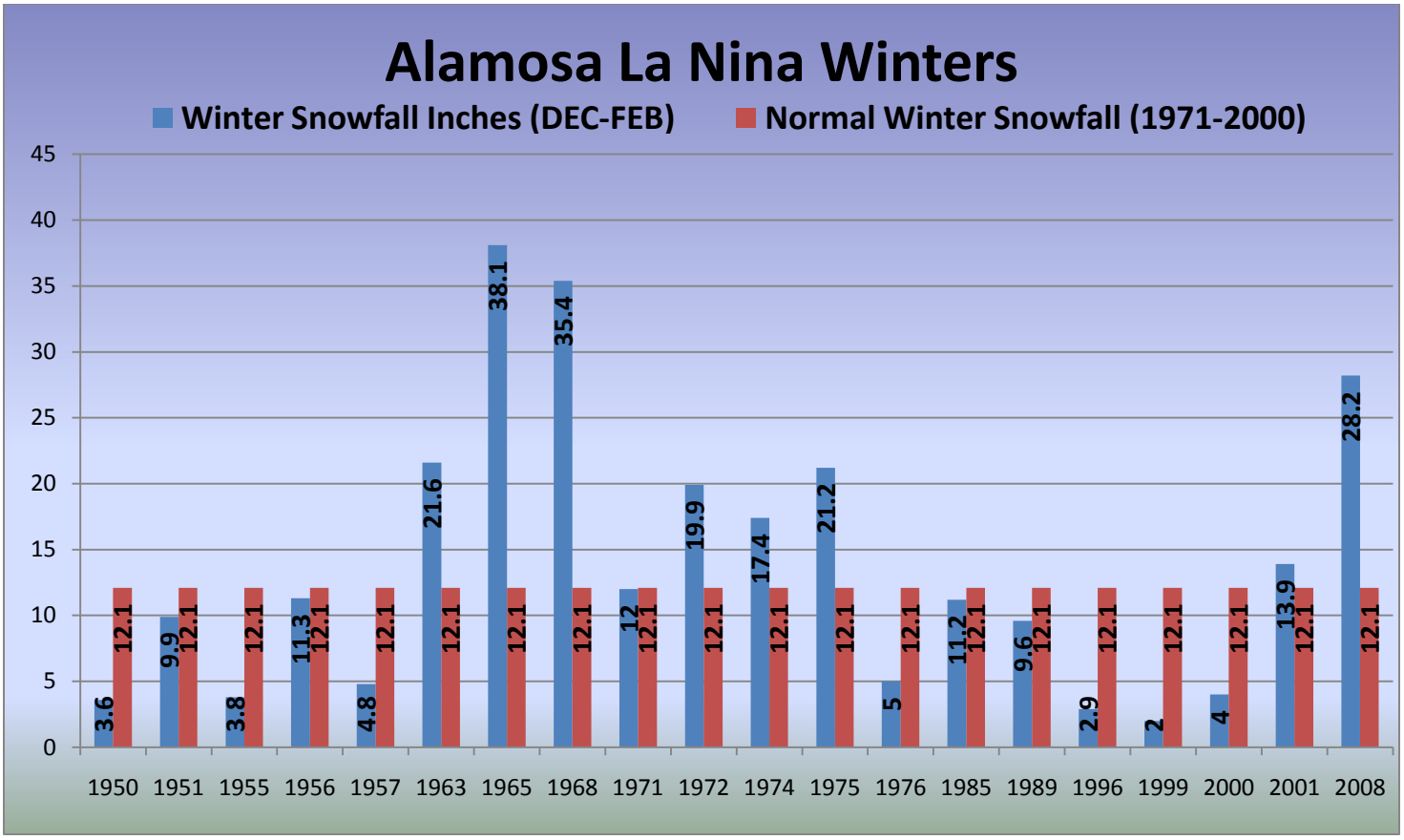
http://www.weather.gov/climate/calendar_outlook.php?wfo=pub&site=56740

The following graphics will highlight winter snowfall across south central and southeast Colorado during La Nina Years.




Colorado Springs La Nina Winters
Winter Snowfall Inches (DEC-FEB)
Normal Winter Snowfall (1971-2000)
40
35
30
25
20
15
10
5
0
6.2
17.2
11
17.2
16.7
17.2
16
17.2
16.9
17.2
8.4
17.2
17.1
17.2
19.5
17.2
20.2
17.2
12.6
17.2
13.9
17.2
13.9
17.2
13
17.2
23.6
17.2
35.5
17.2
7.6
17.2
10.5
17.2
11.7
17.2
24.2
17.2
17.9
17.2
1950 1951 1955 1956 1957 1963 1965 1968 1971 1972 1974 1975 1976 1985 1989 1996 1999 2000 2001 2008


Pueblo La Nina Winters
Winter Snowfall Inches (DEC-FEB)
Normal Winter Snowfall (1971-2000)
35
30
25
20
15
10
5
0
3.4
14.8
15.3
14.8
9.4
14.8
20.7
14.8
8.3
14.8
10.1
14.8
20.7
14.8
24.8
14.8
12.6
14.8
11.7
14.8
15.2
14.8
10
14.8
5.9
14.8
20.4
14.8
30.9
14.8
8.2
14.8
8.3
14.8
5.9
14.8
13.5
14.8
28.2
14.8
1950 1951 1955 1956 1957 1963 1965 1968 1971 1972 1974 1975 1976 1985 1989 1996 1999 2000 2001 2008



The data collected from SNOTEL sites indicate a general trend of above average snowpack across the upper Arkansas River basin in La Nina years. A trend of near or slightly below average snowpack can also be seen across the Upper Rio Grande and San Juan River basins, with generally below average snowpack across the Eastern Mountains in La Nina years.

Trends found in the data collected from the official observation sites at Colorado Springs, Pueblo and Alamosa are more varied, with some La Nina Winters seeing over 200 percent of normal snowfall while other years barely received 20 percent of normal snowfall. However, a general trend of at or below average snowfall during La Nina winters can be observed in the data, especially across the eastern Colorado Plains. Of particular interest again, is the below normal snowfall reported at the official observation sites during the winter of 1998-1999, which had very similar characteristics to the current ongoing La Nina event.

In summary, south central and southeast Colorado has a greater than 40 percent chance of warmer than normal temperatures for the winter months of December 2010 through February 2011, with a 33.3 percent chance of seeing above, below or near normal precipitation, respectively. However, with trends in the data above, a higher percentage of at or above seasonal snowfall will be possible across the upper Arkansas River basin. A higher percent of near normal or slightly below normal snowfall will be possible across the Upper Rio Grande and San Juan River basins, with a higher percentage of below average snowfall possible across the Eastern Mountains and Plains. We will still snow and cold temperatures this winter; however the frequency of storms may be decreased, especially across the Eastern Plains.